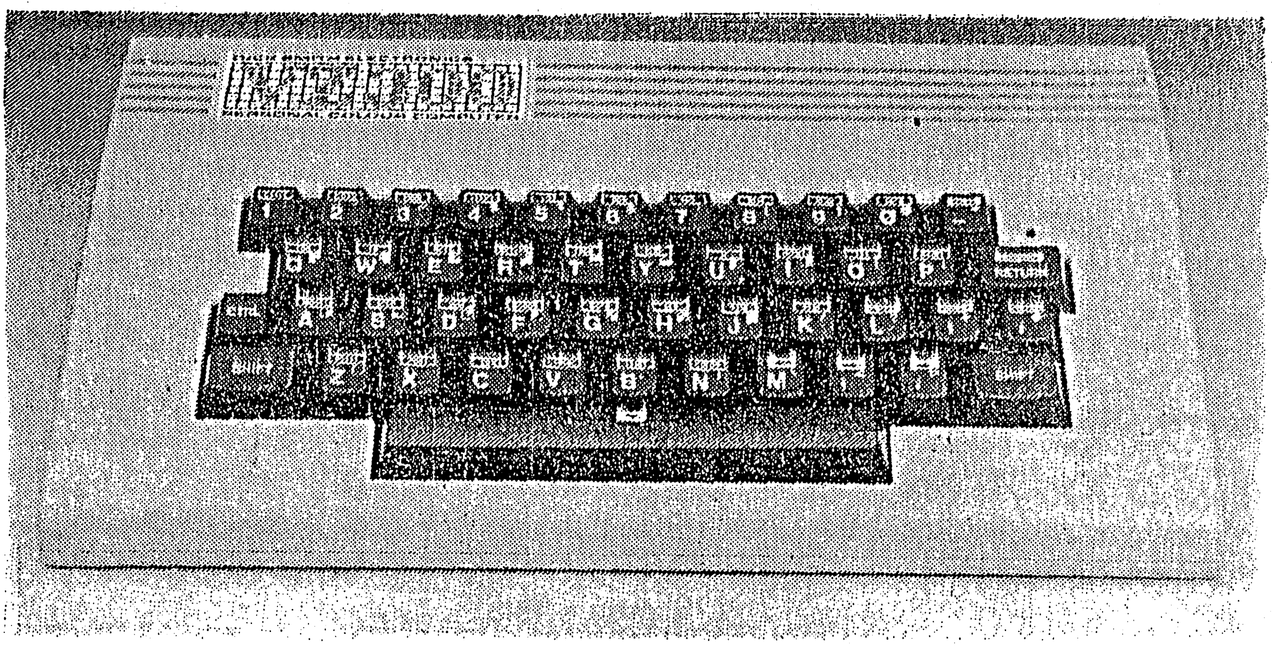
ISSUE NUMBER 5.

HUNTER VALLEY VZ USERS' GROUP MAGAZINE



OCTOBER 1986.

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PRESIDENTS REPORT. . .

Hi there, these are the words of a disappointed President. I recently had a bit of drama with my VZ300 when the tip of the plug on my computer to recorder lead broke off inside the socket in the back of my computer. Being unable to remove the broken tip, the socket was removed and off I trotted to D.S.E. prepared to shell out two or three bucks for a new one. Sorry, none in stock, have to send to Sydney, take two weeks. A fortnight later the part arrives and I open my wallet and reach down among the moths for a five dollar note. What's this I hear, it's not enough, the part cost eight bucks. Okay, it's a sealed unit and it fits on the circuit board but it's only a 3.5 mm stereo socket made of metal and plastic. You think the Yankee dollar is holding its value, HA!, I just found a new investment market. For that price I should have got the whole bloody packet for spares. The Moral of this story is "Shop Around". Don't be an idiot like me and get taken for a ride.

There is a Gentleman in QLD who writes a newsletter when he feels like it and believes he is Gods gift to the VZer. The more I read and hear about this chap the more I think he is out for a fast buck and to have people think he is the be all and end all to VZers. Not only are his software prices outrageously high but for the mere pittance of $48 plus $2 postage he will convert your old VZ200 16k ram to run on your new VZ300. Isn't he generous? After all, the parts for conversion cost at least $1.70. How come in Newcastle there have been about a dozen conversions done by one of our members for cost price? Because of workload, the charge is $15 and that includes a 48 hour service back to you (anywhere in Australia). So how can $48 be justified. Sounds a bit like a con does it not?

In the near future we will be printing a program book, a chance to see your work in print, so let's have any original programs you would like to share with others. An option to the Programmer, is to have his/her name on their work. Programs will be both simple and complex in order to appeal to all VZ users.

The last two meetings have not been up to scratch in attendance. Is this a sign of apathy setting in or did you all have other things to do on these nights? If you feel the meetings are lacking something, then let us know. We can only cater to your needs if you tell us what you want. This is YOUR user group and we would like to try your ideas and suggestions so dont be backward about coming/forward.

It seems that our magazine is gaining a reputation interstate. Our Subscriber list is growing all the time. This is great. Keep those contributions coming and dont panic if you dont see it in the next issue because it will appear soon. You may have noticed that I now call this a magazine and not a newsletter, this is directly related to the sheer size of this publication.

Area Manageress for D.S.E., Doris Behrens, suggested that we make up some more posters so they could be despathed via D.S.E Head Office and then be distributed throughout Australia and New Zealand. We went one better than that, after some phone calls we made up a Launch Pack consisting of 2 posters, a letter to each Manager, a magazine, and some subscription forms. All this was put in a large envelope, one for each store in Aust. and N.Z. Every envelope has a club logo printed on it. Thanks Darren for running off the Club Logo.

Well, thats all from me this month, bye now.

PETE.

EDITORIAL. . .

Another first Thursday of the month, "Oh, is it that time again", says the Landlord as I take the first draft of the magazine in to be proof read. "Magazine", yes we have stopped calling it a Newsletter and have made a change to the cover as well. Not the final draft as far as the cover goes, as we are still not 100% happy with this. You see, the thing that I just can't come to grips with is that this cover was done on a erodommoC, and I really feel that someone should be thrown to the lions just for thinking such a sacrilegeous thought!

Speaking of changes, those Members who are able to attend the meetings will realise by now that we have changed meeting localities. We simply outgrew the Church Hall in Islington. Thanks to Father Ray for allowing us the use of his hall to get this Group off the ground. The Adamstown Combined Pensioners Hall is only a temporary solution.

As read you read on you will see that this Issue concerns itself a lot with the keyboard. The article from Dave boyce, (re-drawn by our Tech man, Joe Leon) is all about physically changing your keyboard. Interesting if you like hacking around and don't mind the smell of burning flux up your nose. Comment was made by one of our other contributors, and I thought this a reasonable enough argument to warrant writing about, was that if you don't like your VZ200 keyboard and you are keen to upgrade, perhaps it's time you bought a VZ300 and, if it's the VZ300 keyboard you don't like, then perhaps it is time you upgraded computers. An interesting point of view, but I don't feel as an argument it is strong enough to detract from the article contained within, as my keyboard will (hopefully) be upgraded by the next meeting.

Also an article (one of two this month) from Robert Quinn on INKEY$ Vs. PEEK. This article goes into detail to explain the PEEK address method in relation to the INKEY$ way of accessing input from your keyboard. A table is given, showing the keys and their relevant codes.

As promised last month, from Robert Quinn also is the third article in the series of Understanding Your VZ. Interesting to get a letter in the mail last week from one of the largest radio clubs in the Southern Hemisphere, requesting rights to re-print the first article in this series. Must be great to see your work appreciated, Robert.

Thanks to all who answered my cries of help in regard to the recent shortage of cartoons.

The first article ina what will be a series running for a few months from Bob Kitch (pronounced like kitchen) on programming basics for the beginners will start next month. This will not simply be a few BASIC words explained, your library has a multitude of books on this, but will be more along the lines of how to actually approach the entire art of programming. Make sure you catch these interesting and informative articles over the next few months.

The standard articles are enclosed, good to see Matthews Games Review back again. The beginners section this month has some quick routines on Hi-Res, MODE (1).

LACK OF SUPPORT BY D.S.E, has been a war cry from near and far since the intial launch of the VZ. Perhaps we are just lucky or has the entire D.S.E. establishment has had a re-think. The support shown by the Area Manageress for the Hunter Valley stores couldn't be faulted. Not only did Doris come to our opening night, a few months ago, but as you may have read in Petes' report, we have now been given complete Australia & New Zealand in-store wide coverage of our Users Group. An excellent idea, thank-you very much Doris.

TECHNICAL REPORT. . .

VZ-200 KEYBOARD MODIFICATION by DAVE BOYCE

Although the VZ-200 and VZ-300 have full size keyboards, the key's themselves leave a lot to be desired (on either machine).

It is a relatively simple task to add a keyboard (with proper keys) thereby ridding yourself of several problems in one go.

1 - Keywobble. 2 - Double keying. 3 - Lack of feedback (especially on the 200).

A word of WARNING - attaching a keyboard to your VZ will mean voiding your warranty and you will have to TAKE CARE when attaching wires (maybe ribbon type) inside at the Keyboard cable connection to the Printed Circuit Board (P.C.B.)

I employed a Plug and Socket arrangement with the Socket being installed where the Power Switch used to live.

I'm using 15 Way DB Plugs and Sockets. 14 wires for the actual Address and Data lines and 1 for a 5 Volt line for the Special Function Keys. See diagram.

The keyboard that I used came originally from Altronics. They do not carry these any more but the same keyboard maybe bought from Dick Smiths. (Latest price $29.95).

The keys that are 'left over' can be used as S.F.keys such as PRINT, LIST, BREAK, @ Symbol, BACKSPACE, RUN etc.

Also now possible are TWO SHIFT keys and a FULL SIZE SPACE-BAR on the VZ-200.

CONSTRUCTION

Whilst the actual wiring is straightforward enough, it is timeconsuming and tedious and is not recommended if you don't like fishing.

The thing that needs most care is attention to the position of each key in relation to the matrix (see diagram).

Make sure that you come off the correct place in the computer i.e. make your connections at the circuit board end and not the keyboard end of the cable. Take all precautions, especially if a beginner. When soldering to the various points it is wise to heat your iron then switch off before soldering each point. Be sure to check for bridges and any dry joints. See/use issue #1 and the attached diagrams.

After wiring up, and, before plugging in your NEW Keyboard, ENSURE that the Computer is working correctly. Both keyboards will work together.

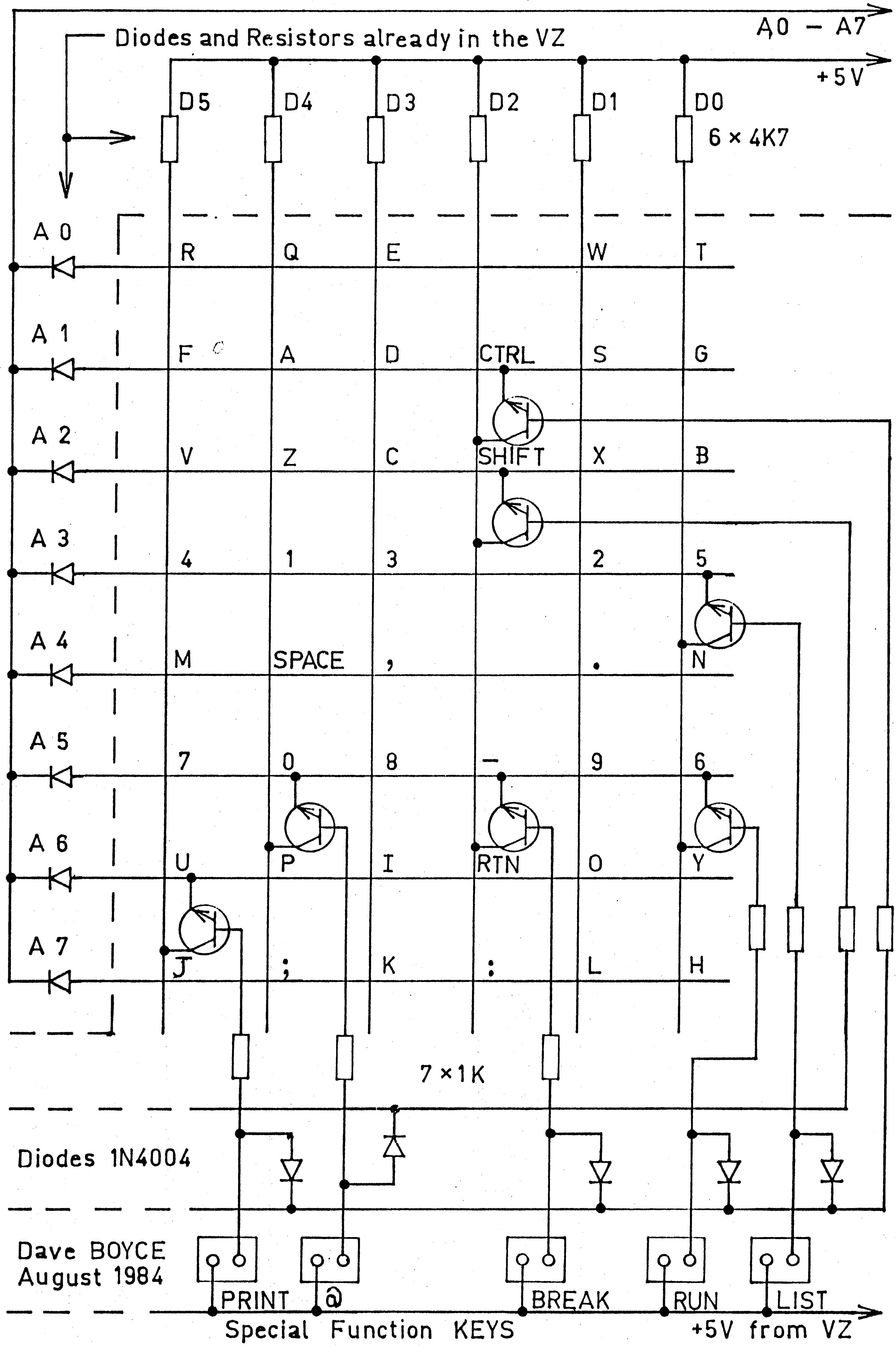
Do not make the cable to the new keyboard too long. A toggle switch can be wired in parallel with the SHIFT key, this then acts as a SHIFT LOCK, very handy when using the Word Processor.

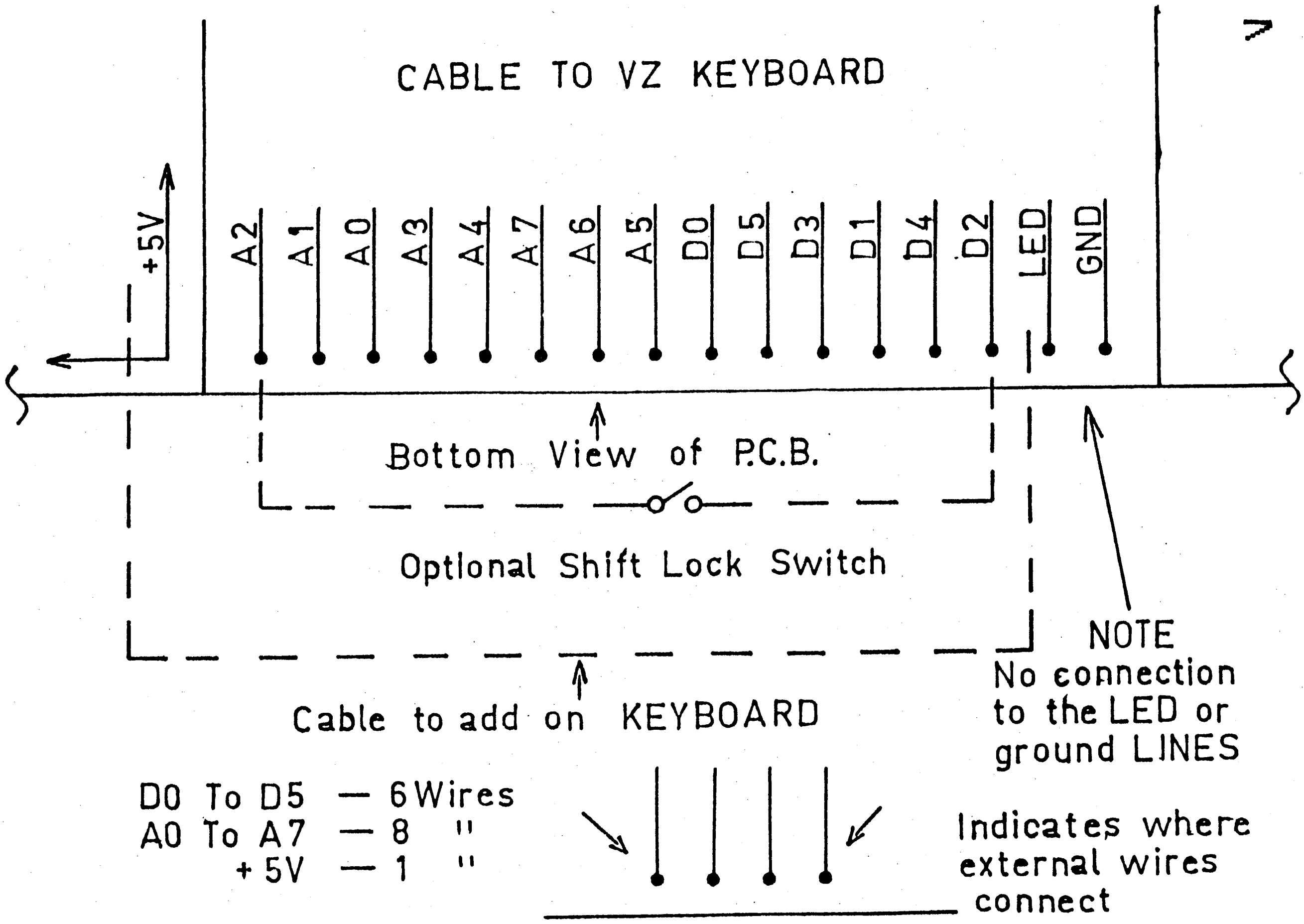
Refer to the diagram for Wire Designation and Orientation. Although the GND wire does not go to the keyboard it is easily found for wire orientation.

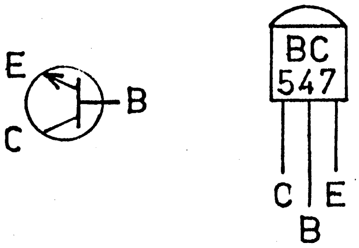
Incidentally, a word of caution, IF YOU have the Slightest Doubt as to your ability to cope, THEN DON'T, because the RISK and RESPONSIBILITY is all Yours.

The Keyboard modification works - and works well - just takes time.

This article originally appeared in JOHN WATER'S VE ZEE NEWS No 4. OCT '84.


A0 – A7
Diodes and Resistors already in the VZ
+5V
D5
D4
D3
D2
D1
D0
6 × 4K7
A 0
A 1
A 2
A 3
A 4
A 5
A 6
A 7
R Q E W T
F A D CTRL S G
V Z C SHIFT X B
4 1 3 2 5
M SPACE , . N
7 0 8 – 9 6
U P I RTN O Y
J ; K : L H
7 × 1K
Diodes 1N4004
Dave BOYCE
August 1984
PRINT
@
BREAK
RUN
LIST
Special Function KEYS
+5V from VZ







Bottom view of KEYS

The +5V Line can be picked up from anywhere convenient — E.G. The Voltage Regulator, or the +5V pin on one of the Buss connetors.



'I'm sorry, Mr Finsbury, but according to our computer you're dead.'

PEEK vs. INKEY$. . .

```
1 D=0:B=1:A=26878
2 FOR R=1 TO 8:P(R)=PEEK(A):IF P(R) < 255 THEN D=1
3 A=A-B:B=B*2:NEXT:IF D=0 THEN 1
4 FOR R=1 TO 8:IF P(R) < 255 THEN POKE 30776,2
5 PRINT USING"###";P(R);:PRINT" ";:POKE 30776,1:NEXT:GOTO 1
```

This routine can be used to explore the coding for the keyboard. There are eight sets of keys on the keyboard. In the table below each set of keys is identified by the address of a memory cell where the code for that set is stored. When no key (or combination of keys) in a set is being pressed, the code is 255. Pressing a key (or combination of keys), when the routine is RUN, will print a line of codes, one code for each set of keys. The listing of addresses across the page for the table is in the same order as for the sequence of eight codes across the screen. The set code for a pressed key will print in INVERSE form and will be a number less than 255. All the sets of which no key has been pressed will print in NORMAL form and the code will be 255. Try pressing simultaneously two or more keys in the same set. Then try pressing simultaneously two or more keys from different sets.

The codes can be used to make fuller use of the keyboard than is possible than using INKEY$. The CTRL and SHIFT keys do not respond to INKEY$, nor do SHIFT X, SHIFT C, SHIFT V, SHIFT B. They can be accessed and put to use by a BASIC statement of the general form:-

IF PEEK(address) = X THEN ..... .

e.g. If PEEK(26875)=251 THEN SOUND 30,1:GOSUB 500

This will enable the GOSUB 500 if the SHIFT key is pressed.

e.g. IF PEEK(26875)=250 THEN PRINT A$

This will print A$ if the SHIFT key is held down and the B key is pressed. CTRL, CTRL A, CTRL S, CTRL D, CTRL F, CTRL G, can also be of great use.

RETURN key does respond to INKEY$ -- CHR$(13) -- , but it is still useful to access RETURN P, RETURN O, RETURN I, RETURN U and RETURN Y with the PEEK(26825).

The SPACE key (or bar) yields the same result from INKEY$ whether you press the SPACE key alone or hold down SHIFT key and press SPACE key. You can differentiate between these two keyboard actions by making use of PEEK as well as INKEY$.

```
10 A$=INKEY$:A$=INKEY$:IF A$="" THEN 10
20 IF A$=" " AND PEEK(26875)=251 THEN PRINT "SHIFT SPACE":GOTO10
30 IF A$=" " THEN PRINT "SPACE ONLY"
40 GOTO 10
```

NOTE: accessing keys by the PEEK(address) method is a little slower than INKEY$; you need to keep the key down a little longer to get a response.

TABLE OF SETS OF KEYS FOR THE VZ KEYBOARD.

CODES	26878	26877	26875	26871	26863	26847	26815	26751
251		CTRL	SHIFT			-	RETURN	:
239	Q	A	Z	1	SPACE	0	P	;
253	W	S	X	2	.	9	O	L
247	E	D	C	3	,	8	I	K
223	R	F	V	4	M	7	U	J
254	T	G	B	5	N	6	Y	H
235		CTRLA	SHIFTZ				RETURNP	
249		CTRLS	SHIFTX				RETURNO	
243		CTRLD	SHIFTC				RETURNI	
219		CTRLF	SHIFTV				RETURNU	
250		CTRLG	SHIFTB				RETURNY	

PRINTER/PLOTTER SECTION. . .

On the following page is a new department for our magazine. First is a small routine and this is followed by a short program. Both of these are for members who have a printer/plotter. The first is a simple hi-res screen dump, originally from the VZ200 Second Book of Programs, page 11, written by Phillip Hayne. With the kind permission of D.S.E., through Mr. Paul Beaver, we have been able to reproduce this. An excellent routine when put into some programs like PICTURE SHOW - Dave Boyce (disk only at this stage) or particularily a lot of fun when placed within MUSIC WRITER - D.S.E., you actually get to have a hard copy of the music you have just composed! You will need to put the following lines of code into the MUSIC WRITER program to direct the program to this routine.

```
2008 IF A$="X" AND EO=0 AND S$(E)>"" THEN 6100
4070 PRINT@452,"X  COPY TO PRINTER."
```

You may note that the routine is structured (line numbers) to fit on the end of the MUSIC WRITER program.

The following program, called SQUARES, written by Dave Boyce, creates a rather fascinating pattern on your plotter. Using the creative color ability of the printer/plotter, you may even be able to make this even more effective. Let us know. Don't stare at this too long or you may end up with Dr.Who....

```
6100 ' # SCREEN DUMP
6110 ' # TO PRINTER/PLOTTER
6120 LPRINT CHR$(17) 'TEXT MODE
6140 LPRINT CHR$(18) 'GRAPHICS MODE
6150 LPRINT"I" ' INITIALIZE
6170 FOR Y=0 TO 63 ' Y AXIS RANGE
6180 FOR X=0 TO 127 'X AXIS RANGE
6190 SP=POINT(X,Y)
6200 IF SP=1 THEN 6300 'IF GREEN  PIXEL THEN LEAVE BLANK
6220 IF SP=2 THEN LPRINT"C0" 'BLACK
6240 IF SP=3 THEN LPRINT"C2" 'GREEN
6250 IF SP=4 THEN LPRINT"C3" 'RED
6270 LPRINT"M";X*3;",";Y*-4   '  MOVE TO POSITION
6280 LPRINT"J2,0,0,-2,-2,0,0,2"  'PLOT POINT
6300 NEXT X,Y  'NEXT PIXEL
6320 LPRINT"M0,-500"
6330 LPRINT"C0,S1,A"
6340 ' RETURN TO BLACK,NORMAL   SIZE AND RETURN TO TEXT MODE
6350 GOTO 2001 'RETURN TO ENTRY
6370 ' THIS PROGRAM WILL DO A   SMALL SCREEN DUMP IF YOU CHANGE
6380 ' LINE 6270 TO READ
6400 ' 6270 LPRINT"M";X*2;",";Y*-3"
6500 END
```

```
10 REM SQUARES BY DAVE BOYCE
20 CLEAR 200
30 X1=0:Y1=0:X2=0:Y2=-480:X3=480:Y3=-480:X4=480:Y4=0
40 LPRINTCHR$(18)
70 ' MAIN LOOP
80 A$="M"+STR$(X1)+","+STR$(Y1)
90 LPRINT A$
100 A$="D"+STR$(X2)+","+STR$(Y2)+","+STR$(X3)+","+STR$(Y3)
110 B$="D"+STR$(X4)+","+STR$(Y4)+","+STR$(X1)+","+STR$(Y1)
120 LPRINT A$
130 LPRINT B$
140 P1=X1:Q1=Y1
150 X1=INT(X1+(X2-X1)/20):Y1=INT(Y1+(Y2-Y1)/20)
160 X2=INT(X2+(X3-X2)/20):Y2=INT(Y2+(Y3-Y2)/20)
170 X3=INT(X3+(X4-X3)/20):Y3=INT(Y3+(Y4-Y3)/20)
180 X4=INT(X4+(P1-X4)/20):Y4=INT(Y4+(Q1-Y4)/20)
190 IFN=31 GOTO 220
200 N=N+1
210 GOTO 70
220 LPRINT"S1,C0":LPRINTCHR$(17)
230 FORLL=1 TO 12:LPRINT:NEXTLL
250 END
```

When you enter a BASIC word as a string of characters from the keyboard and press RETURN, the BASIC interpreter starts at the beginning of a WORD TABLE in ROM memory which is a complete list of the BASIC WORDS in the numerical order of their tokens. The table begins with END (token 128) and ends with MID$ (token 250). As the interpreter makes its way through the WORD TABLE it keeps a COUNT, starting from 127, and incrementing for every word it encounters in the TABLE. When it finds the word in the TABLE that matches, character for character, the string of characters you input, the interpreter now has the token code (the current COUNT) for that word.

The TABLE begins at address 5712 and ends at address 6175. Each word is listed in the TABLE, character by character, in ASCII code, but the first character of each word is the ASCII code for that character plus 128. When the interpreter encounters a byte greater than 128, it knows that this marks the beginning of a new word (and so COUNT is incremented) and that the current word has ended with the last byte. Most VZ words begin with an alphabetical character; the ASCII code for an alpha character plus 128 is the character code for the inverse of that character. The exceptions are one character words like +, -, =, etc... . But they too are represented by their ASCII character plus 128.

A large number of the locations in the TABLE are reserved for non VZ words, words that were part of the vocabulary of the TRS-80 computer. There is a memory cell set aside for each character for these non VZ words, but the original ASCII character codes have been obliterated. The first character code of such a word has been replaced by the byte 129 (1+128) and all the other character codes have been replaced by zeroes. The consequence of this is that the interpreter is unable to make a match between any of these words that you might try to input into a BASIC line or input as a direct command, and any word in the TABLE.

The word is not recognised as a legitimate vz BASIC word, the token is not derived from COUNT and the word cannot be tokenised in program memory or acted upon as a direct command.

At least twenty-seven of these non VZ words are TRS-80 DOS BASIC WORDS. There are no processing routines in the VZ operating system for these words, so it is just as well that they have been decommissioned.

Three useful words (TRON, TROFF and DEFSTR) have had their places in the TABLE taken over by new VZ words (COPY, COLOR and VERIFY). A further three words (LINE, EDIT and ERROR) have been replaced by CRUN, MODE and SOUND. Given the superior editing facilities of the VZ over those of the old TRS-80, LINE and EDIT are no loss.

But that leaves us with eighteen or so useful words which have been obliterated from the TABLE (though their positions are intact), which have not been replaced with new VZ words, and for which the VZ operating system retains the ability to process and implement. And all that stops the VZ from doing so is its inability to recognise these words and replace them with their tokens. There is no good reason I can think of why these words were decommissioned in the TABLE of the VZ200, nor why they were not recommissioned in the VZ300. So, the whole problem with these words is getting them into a program in token form. Once they are there they do their jobs. Later in this article we will see how this can be done.

PART 4 NEXT MONTH...

GALAXON is D.S.E.'s hot new game. The game seems to be a cross between the arcade games Galaxian and Galaga. For the usual price of $14.95 you get many hours of fast shooting hi-res action. The game is only available on tape for obvious reasons but the main game is easily transfered to disk for faster loading (see times below). The tape contains three linked parts. These are a very impressive, extravagant lo-res title page, next is a page of instructions and finally the main game. All three parts of this program are in binary format.

The title page is better than others of its kind. It features the word GALAXON running diagonally from the top left hand corner across the screen in orange block (shift+J character) letters and a picture of two of the creatures in the game, one each side of the title. This is all surrounded by a black (shift+Z) background. The instructions are simply a single darkgreen screen with a rough but sufficent outline on how to play the game. The main program starts off with the screen showing the keyboard controls. They are as follows:-

<- ... (M) ... LEFT
-> ... (,) ... RIGHT
SHIFT .... FIRE

I also discovered the SPACE bar can be used to FIRE and if you wait about 5 seconds the program will jump to hi-res and display an advance score table. The games screen is set up in the following way. The top left hand corner is your score and on the right hand side top corner is the current top score. In the bottom left hand corner are your remaining men and this is also the starting point of your ship. In the right hand lower corner is your stage status indicated by flags. After five flags you go up a level and this is indicated by a box with a cross on it and this is situated to the right of any further status flags. As yet I have only conquered stage two on the second level, so I have no iea what happens on the third level. Each level is a set of five screens.

The aim of the game is to shoot the aliens hovering above you. Unlike in Spaceinvaders, whilst hovering, they do not fire back at you but merely wander back and forth across the screen, then they descend the screen at a hasty rate of knots. There are three rows of aliens. The two bottom rows of creatures are blue and they waddle across the screen. The back row are red and they wink at you as well as waddle. Although an analagy to Spaceinvaders I relate to (the screens really aren't dissimilar), the main difference is that the creatures dive, and fire at you while doing so. To make things even more difficult, towards the end of the the screen, the two multicoloured enemy craft at the back of the pack can grab two other creatures and dive at you in unison, making a rather formidable target. The creatures are worth more if you shoot them while they are diving, especially the multicolored craft which makes a special sound if you hit it in a dive. The scores are as follows:-

	HOVERING	DIVING
Multicolored creature	100	500
Red creature	50	100
Blue creature	30	60

An extra man is credited for each 10 000 points and this indicated by a short, interesting tune. Overall this is an excellent game and as I've been heard to say before, Stephen Clarke you've done it again.

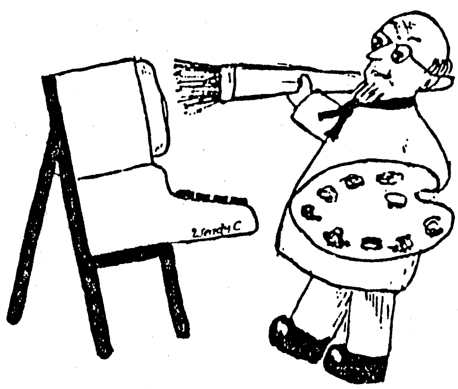
Graphics	*****
Sound	*****
Animation	*****
Overall	*****

Loading Time TAPE 1min 8secs
DISK 6.51secs

FOR BEGINNERS. . .

A dabble with a little hi-res for this months beginners section. Interesting little frame drawing routine, not too fancy or involved, but has plenty of scope to play around with and too develop something a little more creative. The program is, if anything, a little on the repetative side as works through its various stages, of course using a wider range of variables would have allowed one to use only about a third of the code. But this detracts from the main issue, the beginners section, so go ahead and have a play around.

```
10 CLS
20 MODE(1)
25 C=2
30 COLOR C
100 FOR X=30 TO 100
110 SET (X,5)
120 NEXT
130 FOR X= 100 TO 30 STEP -1
140 SET (X,50)
150 NEXT
190 Z=51
200 FOR Y=5 TO 50
210 Z=Z-1
220 SET(30,Y)
230 SET(100,Z)
240 NEXT
300 C=C+1:IF C>4 C=1
320 FOR A=40 TO 90
330 SET(A,10)
340 NEXT
350 FOR A=90 TO 40 STEP -1
360 SET(A,45)
370 NEXT
380 Z=46
390 FOR B=10 TO 45
400 Z=Z-1
410 SET(40,B)
420 SET(90,Z)
430 NEXT
440 C=C+1:IF C>4 C=1
450 FOR W=110 TO 20 STEP -1
460 SET (W,0)
470 NEXT
480 FOR W=20 TO 110
490 SET(W,55)
500 NEXT
510 Z=56
520 FOR V=0 TO 55
530 Z=Z-1
540 SET(20,V)
560 SET (110,Z)
570 NEXT
580 C=C+1:IF C> 4 C=1
590 GOTO 30
```

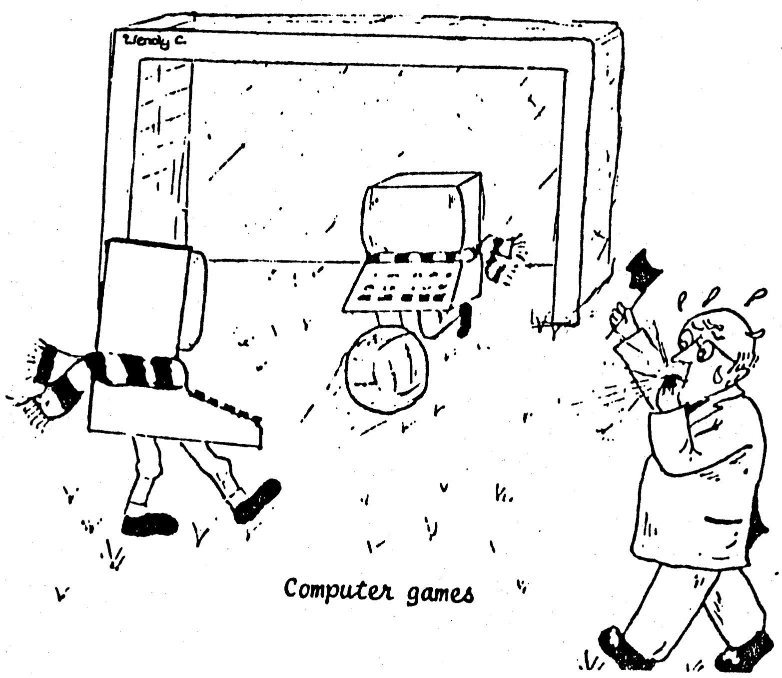


Colouring the screen

Also a new department for our magazine this month, we are going to be on the lookout for all contributions for this section. Surely this is a challenge that no respectable VZ owner could resist. Obviously valadity of your scores cannot be checked, so this whole department can only operate successfully on an honour system. To have your scores published, they must be into me by at least the end of the month. When you write to us, tell us whether VZ200 or VZ300, or if using an adapted keyboard. Best of luck.

HIGH SCORE TABLE

ASTERIODS	35020	MATTHEW TAYLOR
CIRCUS	1080	ADAM MAGEE
DAWN PATROL	59900	MATTHEW TAYLOR
DIG OUT	29200	MATTHEW TAYLOR
GALAXON	12940	MATTHEW TAYLOR
GHOST HUNTERS	13640	ADAM MAGEE
HAMBURGER SAM	47400	MATTHEW TAYLOR
HOPPY	9840	MATTHEW TAYLOR
LADDER CHALLENGE	17680	MATTHEW TAYLOR
PANIK	3740	MATTHEW TAYLOR
PLANET PATROL	987	ADAM MAGEE
ROAD WARRIOR	13840	MATTHEW TAYLOR
SPACE INVADERS	15020	ADAM MAGEE
STAR BLASTER	812	ADAM MAGEE
SUPER SNAKE	1183	EDITOR



Computer games

N O T E S . . .